

Troubleshooting Process Facts

Good troubleshooting is a process that combines knowledge, experience, and intuition. As you practice service and support in a work environment, you will add to your experience and develop intuition that will help you to quickly solve a variety of problems.

Regardless of your current troubleshooting abilities, you will benefit from following a systematic approach to problem solving. The following process has proven effective in a variety of situations:

1. Check for obvious causes. Check power cords, connectors, and common user errors.
2. Identify the symptoms and potential causes. Ask the user to describe the problem, check for error messages, or recreate the problem. Resist the urge to start fixing things at this point.
3. Identify the affected area. Determine how large the problem is. For example, fixes for one client workstation would likely be very different than fixes for a network segment. **Tip:** Establish what has changed. Most often, problems are caused by new hardware or software or changes to the configuration. If necessary, carefully ask users to discover what might have changed that could have caused the problem.
4. Select the most probable cause. Review the list of potential causes. Look for common errors or solutions that can be tried quickly.
5. Implement an action plan, addressing the most likely problem and account for side effects of the proposed plan. When side effects have been weighed against the fix and all concerns have been addressed, fix the problem.
6. Test the result. Ensure that the problem is fully resolved and that implementation did not cause any new problems.
7. Document the solution and process. In the future, you can check your documentation to see what has changed or to help you remember the solution to common problems.

Remember, however, that troubleshooting is a process of both deduction and induction. Experience will show you when deviating from this process can save both time and effort.

Keep in mind the following tips when troubleshooting systems:

- Often the hardest part of troubleshooting is to reproduce the problem. You might need to ask the end user questions to identify exactly how the problem occurred, or you might need to watch them perform the task again to reproduce the problem.
- If a hardware device or a software program causes a specific error, check the manufacturer's Web site for additional help in troubleshooting the error.
- To help diagnose issues, you can run special software tools supplied by the hardware manufacturer.
- Before making changes to the system, back up user and system data. While some changes can be made without affecting user data, you should back up data to protect against unintentional data loss caused by making changes.
- In addition to a basic toolkit, you can keep a few spare parts on hand that you know to be in working order. If you suspect that a component has failed, replace it with the known good spare. If that solves the problem, replace the faulty component.
- Intermittent problems are particularly difficult to troubleshoot. Check for environmental conditions such as kinked cables or overheated components.
- If you have problems identifying a hardware error, you can simplify the system by removing all but necessary components (processor, memory, and hard disk). Add devices one at a time and restart the system. If an error occurs, remove the newly added device and troubleshoot that device. Another strategy would be to remove a single device and restart the system, seeing if removing that device corrects the problem.
- Some problems might be caused by software errors, not hardware failures. You might need to begin by updating the drivers or unloading software.
- After the problem is fixed, ensure the customer's satisfaction and explain what you did to fix the problem.